

REMARKS

Claims 1-17, 18-23, and 25-27 are pending in this application. Support for the amendments to the claims can be found in paragraph [0033] of the specification, as well as the original claims.

Although the Office Action Summary indicates that claims 1-25 are withdrawn from consideration, Applicant assumes that this is a clerical error and requests verification of this assumption.

Claims Objections

Applicant notes with appreciation the withdrawal of the claim objections.

Claim Rejection: 35 USC § 112

Applicant notes with appreciation the withdrawal of the rejection of the claims under 35 USC § 112.

Claim Rejection: 35 USC § 102 over Takahashi et al.

The Office has rejected claims 1, 3, 5, and 25 under 35 USC § 102(b) as being anticipated by Takahashi et al. (U.S. Patent No. 5,783,466) for the reasons noted on pages 2-3 of the Office Action. Applicant respectfully traverses this rejection.

Pointing to Figure 1 and its accompanying description, the Office argues that Takahashi et al. teach every limitation in the claims. Applicant respectfully disagrees. The rejected claims currently contain the limitation that a ceramic layer is directly attached to the lead frame.

But the Office has not substantiated that device in Figure 1 of Takahashi et al. describes such a limitation. The Office alleges that Takahashi et al describe a ceramic layer 31 having a first and second surface and which is positioned to directly contact the second surface of the lead frame pad 32a. Takahashi et al., however, describe a semiconductor device where a ceramic substrate 31 is connected to copper circuit pattern member 32 by using an alloy layer of 33 of ceramic and copper. *See column 5, lines 7-10.* Thus, the alloy layer 33 of Takahashi et al. is present between ceramic substrate and lead frame 32. Accordingly, the skilled artisan would have understood that Takahashi et al. do not describe a ceramic layer that is directly attached to the lead frame.

Thus, the Office has not shown that Takahashi et al. teach every limitation recited in the rejected claims. Accordingly, Applicant requests withdrawal of this ground of rejection.

Claim Rejection: 35 USC § 102 over Wakefield et al.

The Office has rejected claims 11-12, 15-16, and 19-22 under 35 USC § 102(b) as being anticipated by Wakefield et al. (U.S. Patent No. 5,598,034) for the reasons noted on pages 3-6. Applicant respectfully traverses this rejection.

Based on Figure 1 and its accompanying description, the Office argues that Wakefield et al. teach every limitation in the claims. Applicant respectfully disagrees. The rejected claims contain the limitation that a ceramic layer is directly attached to the lead frame or that the ceramic layer is attached to the lead frame by using only a molding material.

But the Office has not substantiated that the device of Figure 1 of Wakefield et al. describes such a feature. As noted by the Office, Wakefield et al. describe a semiconductor device containing a die pad paddle 11 and a heat sink 10 with an upper surface 10a. But as

described by Wakefield et al., the heat sink 10 is connected to the die pad 11 using an adhesive 12 or the like. The adhesive can be any suitable conductive or non-conductive adhesive. *See column 4, lines 5-15.* Thus, the skilled artisan would have understood that the device of Wakefield et al. uses an adhesive to attach the heat sink 10 and the die pad 11, unlike the claimed invention where the ceramic layer is directly attached to the lead frame or that the ceramic layer is attached to the lead frame by using only a molding material

Thus, the Office has not shown that Wakefield et al. teach every limitation recited in the rejected claims. Accordingly, Applicant requests withdrawal of this ground of rejection.

Claim Rejection: 35 USC § 103: Takahashi et al. & Wakefield et al.

The Office has rejected claim 2 as being unpatentable over Takahashi et al. in view of Wakefield et al. for the reasons noted on page 6. Applicant respectfully traverses this rejection.

As noted above, the Office has not substantiated that the device in Figure 1 of Takahashi et al. or the device in Figure 1 of Wakefield et al. teaches or suggests the claim limitation that the ceramic layer is directly attached to the lead frame. And since neither reference individually teaches or suggests this limitation, the combination of these references can not suggest this limitation.

Thus, the Office has not shown that the combination of the cited references suggests every limitation recited in the rejected claims. Accordingly, Applicant requests withdrawal of this ground of rejection.

Claim Rejection: 35 USC § 103: Takahashi et al. & Nakanishi et al.

The Office has rejected claim 4 as being unpatentable over Takahashi et al. in view of Nakanishi et al. (U.S. Patent No. 6,501,156) for the reasons noted on pages 6-7. Applicant respectfully traverses this rejection.

As noted above, the Office has not substantiated that the device in Figure 1 of Takahashi et al. teaches or suggests the claim limitation that the ceramic layer is directly attached to the lead frame. And the Office has not even argued that Nakanishi et al. teaches or suggests such a limitation. And where the Office has not argued or substantiated that each reference individually teaches or suggests this limitation, the Office can not show that the combination of these references suggests this claim limitation.

Thus, the Office has not shown that the combination of the cited references suggests every limitation recited in the rejected claims. Accordingly, Applicant requests withdrawal of this ground of rejection.

Claim Rejection: 35 USC § 103: Wakefield et al. & Heinen et al.

The Office has rejected claims 6-8, 13-14, 17-18, and 23-24 as being unpatentable over Wakefield et al. in view of Heinen et al. (U.S. Patent No. 5,422,788) for the reasons noted on pages 7-10. Applicant respectfully traverses this rejection.

As noted above, the Office has not substantiated that the device in Figure 1 of Wakefield et al. teaches or suggests the limitation that the ceramic layer is directly attached to the lead frame or attached by using only the encapsulant or molding material. And the Office has not even argued that the skilled artisan would have considered such a limitation taught or suggested by the disclosure of Heinen et al. Indeed, the Office previously admitted that the device in Figure 1 of Heinen et al. fails to teach that a ceramic layer is directly attached to the second surface of

the lead frame. And where the Office has not argued or substantiated that each reference individually teaches or suggests this limitation, the Office can not show that the combination of these references suggests this claim limitation.

Thus, the Office has not shown that the combination of the cited references suggests every limitation recited in the rejected claims. Accordingly, Applicant requests withdrawal of this ground of rejection.

Claim Rejection: 35 USC § 103 over Wakefield et al., Heinen et al., & Nakanishi

The Office has rejected claim 9 as being unpatentable under 35 U.S.C. § 103 over Wakefield et al. and Heinen et al., and further in view of Nakanishi for the reasons noted on pages 10-11. Applicant respectfully traverses this rejection.

As noted above, the Office has not substantiated that either Wakefield et al. or Heinen et al. teach or suggest the limitation that the ceramic layer is directly attached to the lead frame. Neither has the Office shown—much less even alleged—that the skilled artisan would have considered such a limitation taught or suggested by the disclosure of Nakanishi et al. And where the Office has not argued or substantiated that each reference individually teaches or suggests this limitation, the Office can not show that the combination of these references suggests this claim limitation.


Thus, the Office has not shown that the combination of the cited references suggests every limitation recited in the rejected claims. Accordingly, Applicant requests withdrawal of this ground of rejection.

CONCLUSION

For the above reasons, as well as the numerous reasons of record, Applicant respectfully requests the Office to withdraw the pending grounds of rejection and allow the pending claims.

If there is any fee due in connection with the filing of this Amendment, including a fee for any extension of time not accounted for above, please charge the fee to our Deposit Account No. 50-0843.

Respectfully Submitted,

By   
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